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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/715,032	11/17/2003	Todd R. Newman	16-561	2769

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EXAMINER	
WEST, PAUL M	
ART UNIT	PAPER NUMBER
2856	

DATE MAILED: 11/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H/A

Office Action Summary	Application No.	Applicant(s)	
	10/715,032	NEWMAN ET AL.	
	Examiner	Art Unit	
	Paul M. West	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 and 23-42 is/are pending in the application.
- 4a) Of the above claim(s) 4,6,10,11,18-20,26,27,30 and 37-41 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21,23,24 and 42 is/are allowed.
- 6) ☒ Claim(s) 1-3,5,7-9,12,14,28,29 and 31-33 is/are rejected.
- 7) ☒ Claim(s) 13,15-17,25 and 34-36 is/are objected to.
- 8) ☒ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claim 36 is objected to because the term "said encapsulant" lacks antecedent basis in the claim. It appears the that claim 36 should be dependent on claim --34-- instead of claim "33."

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1,3,5,7-9,12,29, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patel in view of Korst et al.

3. Regarding claim 1, Patel discloses in the patent entitled "Telecommunication system for remote LP gas inventory control" a base fixed relative to the container', a movable member supported by the base for relative positioning with respect to the base; a float member that moves relative to the base as the level of fluid in a container changes, an arm attached to the movable member and float member where the position of the float is translated into movement of the moveable member with respect to the base', at least one magnetic flux sensor coupled to one of the moveable member or base that is capable of creating an electrical output signal in response to a change in

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magnetic flux density, and 9 at least one magnet disposed proximate the magnetic flux sensor coupled to one of the moveable member or base for providing a magnetic field to induce a change in electrical output response from the magnetic flux sensor as the float member moves with changes in fluid level (Figures 3,4,1 1, 13 and Column 4, lines 30-50). Patel does not disclose the base or the magnetic flux sensor being located within the container. Korst et al. discloses an apparatus for sensing the fluid level in a container with a float arm coupled to a magnetic flux sensor 13 (Col. 2, lines 4-7) on a base 8,9 which is located within the container (Col. 1, line 39). It would have been obvious to one of ordinary skill in the art to combine the teachings of Korst with the apparatus of Patel and locate the base and magnetic flux sensor inside the container because doing so would save space and add versatility in applications where there may not be room to install the base and sensing components to the outside of the container.

4. Regarding claim 3, Patel discloses where the magnetic field is provided using an electromagnet (29).

5. Regarding claim 5, Patel discloses where the magnetic flux sensor remains stationary while the magnetic field changes position relative to the magnetic flux sensor (Column 4, lines 30-50).

6. Regarding claim 7, Patel discloses where the float and float arm are attached to the movable member (Figure 3).

7. Regarding claim 8, Patel discloses where the base has an integral mounting feature so that the fluid level sensor can be mounted to and positively located on a fuel

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pump module, other fuel system, mounting feature or other mounting feature within a fluid container (Figures 2,3).

8. Regarding claim 9, Patel discloses where the base or movable member has integral features for positively positioning the magnetic flux sensor (Figures 2,3).

9. Regarding claim 12, Patel discloses where the base has an integral electrical connector block for making electrical connections to the sensor electronics (Figures 2-4).

10. Regarding claim 29, Patel discloses where a pivoting float maintains similar orientation to the fluid surface throughout the range of float arm travel (Figures 2,3).

11. Regarding claim 33, Patel discloses fixing a base relative to the container; coupling a movable member to the base for relative positioning with respect to the base; providing a float member that moves up and down with the level of fluid in a container changes; attaching the float member to the moveable member by means of an arm attached to the moveable member and float member wherein the position of the float is translated into movement of the moveable member with respect to the base; coupling a magnetic flux sensor to one of the moveable member or base that is capable of creating an electrical output signal in response to a change in magnetic flux density; and positioning at least one magnet disposed proximate the magnetic flux sensor coupled to one of the moveable member or base for providing a magnetic field to induce a change in electrical output response from the magnetic flux sensor as the float member moves up and down with changes in fluid level (Figures 3,4,11,13 and Column 4, lines 30-50). Patel does not disclose the base or the magnetic flux sensor being located within the

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container. Korst et al. discloses an apparatus for sensing the fluid level in a container with a float arm coupled to a magnetic flux sensor 13 (Col. 2, lines 4-7) on a base 8,9 which is fixed within the container (Col. 1, line 39). It would have been obvious to one of ordinary skill in the art to combine the teachings of Korst with the method of Patel and locate the base and magnetic flux sensor inside the container because doing so would save space and add versatility in applications where there may not be room to install the base and sensing components to the outside of the container.

12. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Patel in view of Korst et al. and further in view of Lorenzen.

13. Regarding claim 2, Patel discloses where the at least one magnetic flux sensor element includes a programmable linear ratiometric Hall effect integrated circuit having programmable gain and offset voltage. Patel does not disclose where the sensor has temperature compensation. However, Lorenzen discloses in the patent entitled "Angular position sensor" where the sensor has temperature compensation (Column 8, lines 34-35). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Patel to include where the sensor has temperature compensation. By adding this feature the apparatus would be able to achieve a nearly constant output of the sensor, as a function of sensed magnetic flux or sensed physical position, despite changes in temperature.

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14. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Patel in view Korst et al. and further in view of Swindler.

15. Regarding claim 14, Patel does not disclose where the base has a first travel stop to prevent the float arm from exceeding maximum upward travel and a second travel stop to prevent the float arm from exceeding maximum downward travel.

However, Swindler et al. disclose in the patent entitled "Liquid level gauge" where the base has a first travel stop to prevent the float arm from exceeding maximum upward travel and a second travel stop to prevent the float arm from exceeding maximum downward travel (Column 11, lines 55-62). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Patel to include where the base has a first travel stop to prevent the float arm from exceeding maximum upward travel and a second travel stop to prevent the float arm from exceeding maximum downward travel. By adding this feature the apparatus would be able to prevent the arm from going beyond its normal working range.

16. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Patel in view Korst et al. and further in view of Andersen.

17. Regarding claim 28, Patel does not disclose where the float arm comprises a yoke that attaches symmetrically to the float to reduce cantilevering in the float arm. However, Andersen discloses in the patent entitled "Instrument deflection modifier" where the float arm comprises a yoke that attaches symmetrically to the float to reduce cantilevering in the float arm (Figure 1). Therefore, it would have been obvious to one

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of ordinary skill in the art at the time the invention was made to modify Patel to include where the float arm comprises a yoke that attaches symmetrically to the float to reduce cantilevering in the float arm. By adding this feature the apparatus would be able to accurately determine the level of the liquid.

18. Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patel in view of Korst et al. and further in view of Clark et al.

19. Regarding claim 31, Patel does not disclose where a float geometry defines a float thickness that is less than a width dimension of generally flat float top and bottom surfaces to enhance float buoyancy for low fluid level detection. However, Clark et al. disclose in the patent entitled "Device for gauging, metering or measuring liquids" where a float geometry defines a float 77 with thickness that is less than a width dimension of generally flat float top and bottom surfaces to enhance float buoyancy for low fluid level detection (Figures 1,2). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Patel to include where a float geometry defines a float thickness that is less than a width dimension of generally flat float top and bottom surfaces to enhance float buoyancy for low fluid level detection. By adding this feature the apparatus would be able to maximize the buoyancy of the float.

20. Regarding claim 32, Patel does not disclose where the float thickness is less than either a width or length dimension of a generally rectangular float top and bottom surfaces to enhance float buoyancy for low fluid level detection. However, Clark et al. disclose a float 77 where the float thickness is less than either a width or length

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dimension of a generally rectangular float top and bottom surfaces to enhance float buoyancy for low fluid level detection (Figures 1 ,2). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Patel to include where the float thickness is less than either a width or length dimension of a generally rectangular float top and bottom surfaces to enhance float buoyancy for low fluid level detection. By adding this feature the apparatus would be able to maximize the buoyancy of the float.

Allowable Subject Matter

21. Claim 36 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

22. Claims 13, 15-17, 25, 34, and 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

23. Claims 21, 23, 24, and 42 are allowed.

Response to Arguments

24. Applicant's arguments filed 9 September 2005, with regard to claim 31, have been fully considered but they are not persuasive. Note that the Clark patent clearly discloses a float 77 which has a thickness (vertical dimension) which is less than a width dimension (horizontal dimension).

Conclusion

25. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul M. West whose telephone number is (571) 272-8590. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Hezron S. Williams", with a long horizontal flourish extending to the right.

HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800